This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of data compression comprising:

applying by one or hardware encoders a transform to multi-dimensional data to generate a multi-dimensional transform data set; [[,]] and

coding by the one or hardware encoders the transform data set by applying one or more one-dimensional matching pursuits algorithms,

wherein the algorithms are applied by sequential one-dimensional scans through the data, and wherein successive scans continue in the same direction until an atom is located of lower magnitude than atoms which have previously been located in scans in other directions, and in which the scan direction is then changed.

2. (Currently Amended) A method of data compression comprising:

(a) applying by one or hardware encoders a transform to multi-dimensional data to generate a multi-dimensional transform data set;

(b) convolving by the one or hardware encoders the transform data set with each of a plurality of first one-dimensional basis functions to generate a corresponding plurality of convolved data sets;

(c) determining by the one or hardware encoders a location in a first direction across all the convolved data sets, and a first basis function, representative of a greatest magnitude;

(d) representing by the one or hardware encoders part of the transform data surrounding the said location with an atom derived from the first basis function corresponding to the greatest determined magnitude;

(e) subtracting by the one or hardware encoders the atom from the transform data set to create a new data set;

(f) repeatedly updating by the one or hardware encoders the convolved data sets by convolving any changed part of the transform data set with each of the plurality of first one-dimensional basis functions, and then re-applying steps (c) and (d); and

(g) outputting by the one or hardware encoders as transform data coded versions of the atoms derived at step (d),

wherein the data to be compressed represents video image data, wherein the transform decorrelates at least part of the transform data set better in one direction than in a perpendicular direction, and wherein a first algorithm is applied by carrying out a one-dimensional scan in a direction of greatest correlation.

3. (Original) A method of data compression as claimed in claim 2 in which the coded version of each atom includes magnitude, position in transform data set and number of basis function.

4. (Previously presented) A method of data compression as claimed in claim 1, in which the data to be compressed represents video image data.

5. (Previously presented) A method of data compression as claimed in claim 1 in which the data to be compressed represents a still image.

6. (Previously presented) A method of data compression as claimed in claim 1 in which the data to be compressed comprises residual images within a motion compensated video coder.

7. (Previously presented) A method of data compression as claimed in claim 1 in which one dimension of the transform data set represents time.

8. (Previously presented) A method of data compression as claimed in claim 1 in which the transform is a frequency-separating transform.

9. (Original) A method of data compression as claimed in claim 8 in which the transform decorrelates at least part of the transform data set better in one direction than in a perpendicular direction, and in which a first algorithm is applied by carrying out a one-dimensional scan in the direction of greatest correlation.

10. (Original) A method of data compression as claimed in claim 1 in which the transform is two-dimensional.

11-13. (Cancelled)

14. (Previously Presented) A method of data compression as claimed in claim 1 in which the scan direction is changed to that direction in which an atom of highest current magnitude has previously been located.

15. (Original) A method as claimed in claim 2 including applying a function map to the convolved data sets before determining the location of greatest magnitude.

16. (Original) A method as claimed in claim 15 in which the function map represents a sensory model.

17. (Original) A method as claimed in claim 15 in which the function map represents a psychoacoustic model.

18. (Original) A method as claimed in claim 15 in which the function map represents a psychovisual model.

19. (Previously presented) A method as claimed in-claim 15 in which the function map is multiplicatively applied.

20. (Previously presented) A method as claimed in-claim 15 in which the function map is additively or subtractively applied.

21. (Previously Presented) A method as claimed in claim 36 in which the second one-dimensional basis functions extend in the spatial domain.

22. (Previously Presented) A method as claimed in claim 36 in which the second one-dimensional basis functions extend in the time domain.

23. (Original) A method as claimed in claim 2, including the additional steps of:

(a) convolving the transform data at the said location with each of a plurality of third one-dimensional basis functions; and

(b) determining a third basis function of a greatest magnitude;

and in which the atom is further derived from the third basis function corresponding to the greatest determined magnitude.

24. (Previously Presented) A method as claimed in claim 36, in which the second basis function representative of the greatest magnitude is determined without further searching in the region of the said location.

25. (Previously Presented) A method as claimed in claim 36, in which the second basis function representative of the greatest magnitude is determined at least partly by searching a local area in the region of the said location.

26. (Currently Amended) A method of data compression comprising:

(a) applying by one or hardware encoders a transform to multi-dimensional data to generate a multi-dimensional transform data set;

(b) convolving by the one or hardware encoders the transform data set with each of a plurality of first one-dimensional basis functions to generate a corresponding plurality of convolved data sets;

(c) determining by the one or hardware encoders a first location in a first direction across all the convolved data sets, and a first basis function representative of a greatest magnitude; and representing by the one or hardware encoders part of the transform data surrounding the first location with a first atom derived from the first basis function corresponding to the greatest determined magnitude;

(d) subtracting by the one or hardware encoders the first atom from the transform data set to create a new data set;

(e) convolving by the one or hardware encoders the new data set with each of a plurality of second one-dimensional basis functions;

(f) determining by the one or hardware encoders a second location in a second direction across all the convolved data sets, and a second basis function representative of a greatest magnitude; and representing by the one or hardware encoders part of the new data set surrounding the second location with a second atom derived from the second basis function corresponding to the greatest determined magnitude;

(g) subtracting by the one or hardware encoders the second atom from the new data set to create a further new data set;

(h) repeating by the one or hardware encoders step (b) with the further new data set, and then re-applying steps (c) to (f); and

(i) outputting by the one or hardware encoders as quantized transform data coded versions of the atoms derived at steps (c) and (f),

wherein the second basis function representative of the greatest magnitude is determined without further searching in the region of the second location.

27. (Original) A method of data compression as claimed in claim 26 in which the first location and the second location are coincident.

28. (Currently Amended) A hardware coder for data compression comprising:

a processor;

software means for applying a transform to multi-dimensional data to generate a multi-dimensional transform data set; [[,]] and ~~a coder~~

means for coding the transform data set by applying one or more one-dimensional matching pursuits algorithms,

wherein the transform is a frequency-separating transform, and wherein the transform decorrelates at least part of the transform data set better in one direction than in a perpendicular direction, and in which a first algorithm is applied by carrying out a one-dimensional scan in a direction of greatest correlation.

29. (Currently Amended) A hardware coder for data compression comprising:

(a) means for applying a transform to multi-dimensional data to generate a multi-dimensional transform data set;

(b) means for convolving the transform data set with each of a plurality of first one-dimensional basis functions to generate a corresponding plurality of convolved data sets;

(c) means for determining a location in a first direction across all the convolved data sets, and a first basis function representative of a greatest magnitude;

(d) means for representing part of the transform data surrounding the said location with an atom derived from the first basis function corresponding to the greatest determined magnitude;

(e) means for subtracting the atom from the transform data set to create a new data set;

(f) means for repeatedly updating the convolved data sets by convolving any changed part of the transform data set with each of the plurality of first one-dimensional basis functions; ~~and~~

(g) means for outputting as transform data coded versions of the derived atoms; and

(h) a processor,

wherein the data to be compressed represents video image data, wherein the transform decorrelates at least part of the transform data set better in one direction than in a perpendicular direction, and wherein a first algorithm is applied by carrying out a one-dimensional scan in a direction of greatest correlation.

30. (Currently Amended) A hardware coder for data compression as claimed in Claim 29 including:

(c1) means for convolving the transform data at the said location with each of a plurality of second one-dimensional basis functions; and

(c2) means for determining a second basis function representative of a greatest magnitude;

and in which the means for representing part of the transform data further operates upon the second basis function.

31. (Currently Amended) A <u>hardware</u> coder for data compression comprising:

<u>a processor;</u>

means for applying a transform to multi-dimensional data to generate a multi-dimensional transform data set<u>;</u> [[,]] and

<u>means for</u> coding the transform data set by applying one or more one-dimensional matching pursuits algorithms,

wherein the algorithms are applied by sequential one-dimensional scans through the data, and wherein successive scans continue in the same direction until an atom is located of lower magnitude than atoms which have previously been located in scans in other directions, and in which the scan direction is then changed.

32. (Currently Amended) A <u>hardware</u> coder for data compression comprising:

(a) means for applying a transform to multi-dimensional data to generate a multi-dimensional transform data set;

(b) means for convolving the transform data set with each of a plurality of first one-dimensional basis functions to generate a corresponding plurality of convolved data sets;

(c) means for determining a first location in a first direction across all the convolved data sets, and a first basis function representative of a greatest magnitude; and representing part of the transform data surrounding the first location with a first atom derived from the first basis function corresponding to the greatest determined magnitude;

(d) means for subtracting the first atom from the transform data set to create a new data set;

(e) means for convolving the new data set with each of a plurality of second one-dimensional basis functions;

(f) means for determining a second location in a second direction across all the convolved data sets, and a second basis function representative of a greatest magnitude; and representing part of the new data set surrounding the second location with a second atom derived from the second basis function corresponding to the greatest determined magnitude;

(g) means for subtracting the second atom from the new data set to create a further new data set;

(h) means for repeating step (b) with the further new data set, and then re-applying steps (c) to (f); ~~and~~

(i) means for outputting as transform data coded versions of the atoms derived at steps (c) and (f)<u> ; and</u>

<u>(j) a processor,</u>

wherein the second basis function representative of the greatest magnitude is determined without further searching in the region of the second location.

33. (Currently Amended) A <u>hardware</u> codec including a coder as claimed in claim 28.

34. (Canceled)

35. (Currently Amended) A <u>non-transitory</u> machine-readable data carrier carrying <u>out</u> a ~~computer program~~ <u>method</u> as claimed in claim <u>1</u> [[34]].

36. (Original) A method as claimed in claim 2 including the further steps of:

(c1) convolving the transform data at the said location with each of a plurality of second one-dimensional basis functions;

(c2) determining a second basis function representative of a greatest magnitude; and including, at step (d), representing part of the transform data surrounding the said location with an atom derived both from the first and from the second basis functions corresponding to the greatest determined magnitudes.

37-40. (Canceled)

41. (Previously presented) A method of data compression as claimed in claim 2 in which the data to be compressed represents a still image.

42. (Previously presented) A method of data compression as claimed in claim 3 in which the data to be compressed represents a still image.

43. (Previously presented) A method of data compression as claimed claim 2 in which the data to be compressed comprises residual images within a motion compensated video coder.

44. (Previously presented) A method of data compression as claimed claim 3 in which the data to be compressed comprises residual images within a motion compensated video coder.

45. (Previously presented) A method of data compression as claimed in claim 2 in which one dimension of the transform data set represents time.

46. (Previously presented) A method of data compression as claimed in claim 3 in which one dimension of the transform data set represents time.

47. (Previously presented) A method of data compression as claimed in claim 2 in which the transform is a frequency-separating transform.

48. (Previously presented) A method of data compression as claimed in claim 3 in which the transform is a frequency-separating transform.

49. (Previously presented) A method as claimed in claim 16 in which the function map is multiplicatively applied.

50. (Previously presented) A method as claimed in claim 17 in which the function map is multiplicatively applied.

51. (Previously presented) A method as claimed in claim 18 in which the function map is multiplicatively applied.

52. (Previously presented) A method as claimed in claim 16 in which the function map is additively or subtractively applied.

53. (Previously presented) A method as claimed in claim 17 in which the function map is additively or subtractively applied.

54. (Previously presented) A method as claimed in claim 18 in which the function map is additively or subtractively applied.

55. (Previously presented) A method as claimed in claim 19 in which the function map is additively or subtractively applied.

56. (Currently Amended) A hardware codec including a coder as claimed in claim 29.

57. (Currently Amended) A hardware codec including a coder as claimed in claim 30.

58. (Currently Amended) A hardware codec including a coder as claimed in claim 31.

59. (Currently Amended) A hardware codec including a coder as claimed in claim 32.

60. (Canceled)

61. (Previously presented) A non-transitory machine-readable data carrier carrying out a ~~computer program~~ method as claimed in claim 2 [[60]].

62. (Canceled)

63. (Previously presented) A non-transitory machine-readable data carrier carrying out a ~~computer program~~ method as claimed in claim 26 [[60]].